

WEST

Generate Collection

L7: Entry 11 of 19

File: USPT

Jun 1, 1976

DOCUMENT-IDENTIFIER: US 3960748 A

TITLE: Nematic liquid crystal compositions

DEPR:

A mixture of 2 molar parts of p-[(p-methoxybenzylidene) amino] phenyl butyrate, 1 molar part of p[(p-butoxybenzylidene) amino]phenyl propionate and 1 molar part of N-(p-valeryloxybenzylidene)-p-pentoxycarbonyloxyaniline (respectively compounds numbers 1, 2, and 3 below) were combined with 0.4% by weight of purified triethylamine hydrochloride as a transiminization catalyst and heated at 80.degree.C for 4 hours. The reaction mixture was diluted with a large amount of benzene and then filtered twice through a fine sintered-glass funnel. The benzene was removed under vacuum. Sufficient transiminization catalyst remained in the resulting nematic liquid crystal composition to impart thereto a resistivity of about 2 .times. 10.sup.9 ohm-cm. A suitable resistivity of 2.7 .times. 10.sup.8 ohm-cm can also be imparted to the transiminized mixture if further purified with cyclohexane, as was done with the benzene, by adding to the mixture 4 .times. 10.sup..sup.-5 mole of tetrabutylammonium perchlorate per mole of mixture. The resulting composition had a mesophase temperature range of -5.degree. to 103.degree.C; and .DELTA..epsilon. of -1.668. .DELTA..epsilon. = .epsilon. - .epsilon.. .epsilon. and .epsilon. represent values for the dielectric constant (.epsilon.) when the long axis of the nematic crystal is parallel (.parallel.) or perpendicular (.perp.) to the electric field. In the super-cooled state, this composition exhibits its liquid crystal properties at -20.degree.C. Analysis indicates a nine-component equilibrium mixture consisting essentially of the following compounds: ##SPC5##